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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,426	04/17/2001	Tim Dyer	35013.4000	6845

7590 07/31/2006

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EXAMINER	
MCDONALD, SHANTESE L	
ART UNIT	**PAPER NUMBER**
3723	

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/836,426	DYER ET AL.	
	Examiner	Art Unit	
	Shantese L. McDonald	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9,26-29,32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breivogel et al. in view of Towery et al.

Breivogel et al. teaches a platen, 620, comprising a channel, 628, to allow polishing solution to circulate, for polishing a surface of a workpiece, the platen configured to orbit about an axis at a speed up to about 1000 or 2000 rpm, a polishing surface, 602, and to dither, attached to the platen and a workpiece carrier, 310, proximate the polishing surface, (col. 4, line 65-col.5, line 32). Breivogel teaches all the limitations of the claims except for the workpiece including a low dielectric material, the carrier and the platen being configured to move the workpiece relative to the polishing surface at a speed of about 0.8 to 3.2 m/s., the carrier configured to apply about 0.2 to about 2 pounds per square inch pressure to the workpiece, and the platen being configured to allow the polishing slurry to flow at a rate of about 120 to 200 ml/m. Towery et al. teaches CMP of a low k dielectric material, (col. 3, lines 41-55), with a platen configured to orbit, (col. 4, lines 25-30), and polishing with a surface speed of about 0.8 to 3.2 m/s, (col. 7, lines 60-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made, to use the polisher of

Breivogel et al. to polish the low k workpiece of Jeng, since both inventions deal with polishing semiconductor workpieces with platens configured to orbit with dielectric materials, and since the Towery et al. reference teaches polishing the low k workpiece using chemical mechanical polishing. It would have been further obvious to provide the polishing system of Breivogel with the carrier configured to apply about 0.2 to about 2 pounds per square inch pressure to the workpiece, and the platen being configured to allow the polishing slurry to flow at a rate of about 120 to 200 ml/m, since the Breivogel reference teaches that one may change the parameters in order to optimize the polishing process for a specific application, (col. 8, lines 24-29).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breivogel et al. as modified by Towery et al. as applied to claim1-9,26-29,32 and 33 above, and further in view of Chen.

Breivogel et al. as modified by Towery et al. teaches all the limitations of the claims except for the carrier head including a bladder to regulate the pressure applied to the workpiece. Chen et al. teaches a bladder, 144. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to provide the carrier head of Breivogel as modified by Towery et al. with a bladder, as taught by Chen, in order to more efficiently regulate the pressure applied to the workpiece.

Claims 11,30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breivogel et al. as modified by Towery et al. as applied to claims 1-9,26-29,32 and 33 above, and further in view of Kawamoto et al.

Breivogel et al. as modified by Towery et al. teaches all the limitations of the claims except for the platen including a conduit configured to allow heat exchange fluid to flow through, to thereby regulate the temperature of the polishing surface and the polishing fluid. Kawamoto et al. teaches a conduit configured to allow heat exchange fluid to flow through, (col. 4, lines 25-36). It would have been obvious to one having ordinary skill in the art at the time the invention was made, to provide the polisher of Breivogel as modified by Towery et al., with a conduit to allow heat exchange, as taught by Kawamoto et al., in order to enhance the temperature control of the polishing system.

Claims 12,13,17-20,22,24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breivogel et al. as modified by Towery et al. as applied to claims 1-9,26-29,32 and 33 above, and further in view of Aizawa et al.

Breivogel et al. as modified by Towery et al. teaches all the limitations of the claims except for the polishing system comprising a plurality of polishing stations, clean station, a load station, and a buff station. Aizawa et al. teaches a plurality of polishing stations, 10a,b, clean stations, 26,a,b,c, a load station, 14, and a buff station, 200. Aizawa also teaches an orbital platen, (col. 5, lines 30-3). It would have been obvious to one having ordinary skill in the art to provide the polishing system of Breivogel et al.

as modified by Towery et al. with a plurality of polishing stations, clean station, a load station, and a buff station, as taught by Aizawa et al., in order to more efficiently and rapidly perform the polishing operations, and since both inventions deal with CMP utilizing a carrier and an orbital platen.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breivogel as modified by Towery et al. and Alzawa and further in view of Chen.

Breivogel as modified by Towery et al. and Aizawa teaches all the limitations of the claims except for the system further comprising a carousel carrier apparatus, configured to rotate about an axis and translate in a radial direction. Chen teaches a carousel carrier apparatus, configured to rotate about an axis and translate in a radial direction, (col. 4, lines 16-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the polishing system of Breivogel as modified by Towery et al. and Aizawa with the carousel carrier, in order to enhance the polishing efficiency.

Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breivogel as modified by Towery et al. and Aizawa, and further in view of Kawamoto et al.

Breivogel as modified by Towery et al. and Aizawa teaches all the limitations fo the claims except for the polishing system comprising a temperature control system in the form of grooves in the platen to allow heat exchange fluid to flow through a portion

of the platen. Kawamoto et al. teaches grooves in the platen to allow heat exchange fluid to flow through a portion of the platen, (col. 4, lines 25-36). It would have been obvious to one having ordinary skill in the art at the time the invention was made, to provide the polishing system of Breivogel as modified by Towery et al. and Aizawa with a conduit to allow heat exchange, as taught by Kawamoto et al., in order to enhance the temperature control of the polishing system.

Response to Arguments

Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shantese L. McDonald whose telephone number is (571) 272-4486. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

S.L.M.
July 24, 2006

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